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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,937	02/08/2001	Seung Kil Kim	001033	4134

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EXAMINER	
BEHULU, ALEMAYEHU	
ART UNIT	**PAPER NUMBER**
2682	6

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

KS

Office Action Summary	Application No.	Applicant(s)	
	09/779,937	KIM, SEUNG KIL	
	Examiner	Art Unit	
	Alemayehu Behulu	2682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 13-16* is/are rejected.

7)☒ Claim(s) *11 and 12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4-5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the words fig. 3 on page 4 should be changed to fig. 4.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1, 3, 4 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Heppe (U.S. Pub. Number 2002/0003491).

Referring to claims 1, Heppe teaches a method for allowing a GPS receiver (figure 3, number 36) and a cellular telephone transceiver (figure 3, number 33) to share common antenna (figure 3, number 31) comprising steps of: coupling GPS receiver and cellular telephone transceiver to

antenna (figure 3, number 31 and paragraph [0017]), and disconnecting GPS receiver from antenna when cellular telephone transceiver is transmitting (paragraphs [009] and [0010]).

Referring to claim 3, Heppe teaches the method of clam 1 wherein antenna is a quadruple band antenna (paragraphs [0007], [0010] and [0020]).

Referring to claim 4, Heppe teaches the method of claim 3 quadruple band antenna is tuned to the transmit and receive frequencies of cellular and telephone transceiver and the frequency of GPS receiver (paragraph [0014]).

Referring to claim 6, Heppe teaches in a cellular telephone having a GPS receiver (figure 3, number 36), a quadruple band antenna (figure 3, number 31), switch connecting GPS receiver and antenna, wherein switch (figure 3, number 32), switch disconnects GPS receiver from antenna when cellular controlled by a signal from cellular telephone is transmitting (paragraph [0010] and [0019]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heppe (U.S. Pub. Number 2002/0003491).

Referring to claim 5, Heppe does disclose causing the GPS receiver to begin searching for satellite signals (since Heppe discloses a GPS receiver). But, Heppe fails to teach causing the cellular telephone transceiver to provide signal to the GPS receiver when cellular telephone transceiver ceases transmitting. However, it is important to note that the GPS receiver in Heppe is disconnected form the common antenna when the cellular telephone is transmitting (paragraph [0010]). Since the GPS receiver in Heppe is needed to connect to the antenna, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Heppe, so such that the GPS receiver is connected to the common antenna when the cellular telephone is not transmitting, that the GPS receiver can determine the location of the user of the cellular telephone.

Referring to claim 7, Heppe teaches improvement of claim 6 a connection between cellular telephone and GPS receiver (figure 3) But, Heppe fails to teach transmitting information regarding the period of transmission of cellular telephone to GPS receiver, and in GPS receiver, for delaying the start of a satellite search until the end of period of transmission of cellular telephone. However, it is important to note that Heppe discloses the duration when the GPS receiver is disconnected at the time when the cellular telephone is transmitting (paragraphs [0010 and [0011]). Since that disconnection or delay duration is disclosed in Heppe, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify

Heppe, such that the GPS receiver is connected to the common antenna after the cellular telephone stops transmitting, so that the GPS receiver tracks accordingly.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heppe (U.S. Pub. Number 2002/0003491) further in view of Eastmond (U.S. Patent No. 6.088,337).

Referring to claim 2, Heppe teaches the method of claim 1 disconnecting when cellular telephone transceiver is transmitting (see Heppe paragraph [0010]), providing an electronic switch controlled by signal using switch (figure 3, number 32). But, Heppe fails to teach, switching GPS receiver from antenna to ground. However, Eastmond teaches switching from antenna to ground (figure 2, number 208 and figure 5, number 508 and column 2, lines 60-column 3, lines 36). Therefore, it would have been obvious to a person of ordinary skill in the art, to provide the above teaching of Eastmond to Heppe, in order to avoid interference between the cellular telephone transceiver and the GPS receiver.

5. Claims 8, 9, 10 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heppe (U.S. Pub. Number 2002/0003491) further in view of Shirai (U.S. Patent No. 5,341,301).

Referring to claims 8 and 13 Heppe teaches a method for improving the performance of a cellular telephone equipped with a GPS receiver (figure 3), providing a quadruple band antenna (figure 3, number 31), providing controllable switch (figure 3, number32) . But, Heppe fails to teach providing a diversity antenna for GPS receiver, capable of switching GPS between

quadruple band antenna and diversity antenna, switching GPS receiver from quadruple band antenna to diversity antenna when cellular telephone is transmitting, However, Shirai techs providing a diversity antenna for GPS receiver (figure 1), capable of switching between antenna diversities (figure 1, number 1a-1d), switching receiver antenna from primary antenna to diversity antenna (column 2, lines 21-column 5, lines 10). Regarding to the claimed limitation that the GPS receiver switches to the diversity antenna when the cellular telephone is transmitting, it should be noted that Heppe teaches disconnecting the GPS receiver from the shared antenna when the cellular telephone is transmitting (column [0010] and [0019]). Since the GPS receiver in the combination of Heppe and Shirai now have two antennas, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the art of Heppe (U.S. Pub. Number 2002/0003491) with Shirai (U.S. Patent No. 5,341,301) to connect the GPS receiver to the diversity antenna, in order to allow the GPS receiver to continuously receive GPS signal.

Referring to claims 9 and 15, the combination of Heppe and Shirai disclose the method of claim 8 .But, Heppe and Shirai fail to disclose causing cellular telephone to provide a signal to GPS receiver when cellular telephone transceiver ceases transmitting, and causing GPS receiver to delay searching for satellite signals until signal is received. However, it is important to note that the GPS receiver in Heppe is disconnected for a known period from the shared antenna when the cellular telephone is transmitting (paragraph [0010]). Since the GPS receiver in Heppe is needed to connect to the antenna, at the time of the invention, it would have been obvious to a person of

ordinary skill in the art to modify Heppe, so that the GPS receiver can determine continuously the location of the user of the cellular telephone.

Referring to claim 10, the combination of Heppe and Shirai teach the method of claim 8 further comprising the steps of: monitoring the strength of GPS signals received from both antennas (see Shirai figure 6), and switching GPS receiver to the antenna with the stronger signal during the time GPS receiver is receiving (see Shirai figure 6, number 407).

Referring to claim 14, the combination of Heppe and Shirai teach the improvement of claim 13 wherein switch is controllable and circuitry for switch (see Heppe, figure 3, number 32), circuitry is coupled to cellular telephone and (see Heppe column [0010]), and circuitry receives a signal from cellular telephone when cellular telephone is transmitting (see Heppe figure 3, number 33 and column [0010] and [0019]).

Referring to claim 15, the combination of Heppe and Shirai teach the improvement of claim 14. But Heppe and Shirai fail to teach GPS receiver is coupled to cellular telephone and for delaying of a satellite search until the end of period of transmission of cellular telephone. However, it is important to note that when the GPS receiver in Heppe is disconnected from the shared antenna, at the time when the cellular telephone is transmitting is disclosed paragraphs [0010] and [0019]). Since the GPS receiver in Heppe is needed to connect to the antenna, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Heppe, so that the GPS receiver can determine continuously the location of the user of the cellular telephone.

Referring to claim 16, the combination of Heppe and Shirai teach the improvement of claim 15, circuitry, coupled to GPS receiver (see Heppe, figure 3), checking signal strength (see Heppe, paragraph [0020], comparing the signal strength received from both antennas (see Shirai, figure 6, numbers 402 and 408), switch circuitry for controlling diversity antennas (see Shirai, figure 1, numbers 1a-1d) for switching between diversity antennas based on signal strength (see Shirai, figure 6, numbers 402 and 408). Regarding to the claimed limitation that the GPS receiver switches to the diversity antenna when the cellular telephone is transmitting, and when the signal strength from the diversity is stronger, it should be noted that Heppe teaches disconnecting the GPS receiver from the shared antenna when the cellular telephone is transmitting (column [0010] and [0019]) and Shirai teaches switching between diversities based on signal strength (figure 6). Since the GPS receiver in the combination of Heppe and Shirai now have two antennas, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the art of Heppe (U.S. Pub. Number 2002/0003491) with Shirai (U.S. Patent No. 5,341,301) to connect the GPS receiver to the diversity antenna, in order to allow the GPS receiver to continuously receive GPS signal.

Allowable Subject Matter

6. Claims 11 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Referring to claims 11 and 12, the applied references fail to disclose, or render obvious the claimed limitations that logically ORing first and second signals for switching determination between the two antennas, as specified in the claim.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Krasner U.S. Patent No. 6,002,363 Combined GPS and Positioning System and Communications System Utilizing Shared Circuitry.

Krasner U.S. Patent No. 6,107,960 Reducing Cross-interference in a Combined GPS Receiver and Communication System

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alemayehu Behulu whose telephone number is 703-305-4828. The examiner can normally be reached on 8 AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 703-308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-746-3501.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

AB

Nguyen Vo
11/17/2003

NGUYEN T. VO
PRIMARY EXAMINER